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Rail Road News.

Railroad Hand-Car.

The Buffalo Commercial Advertiser states that Mr. Mattice, of that city, has invented a new hand-car for railroads, which will be likely to supersede those now in use. It is so constructed that it can be packed away in the shape of a large trunk or box, and thus rendered easily portable and capable of being put in readiness for service in a few minutes. The part which composes the body of the car, is closed with hinges, and thus becomes the box into which the wheels and other parts are placed for carriage. It is, withal, light easily worked, and capable of being driven at a high speed. Its great utility will be that it can be carried in a baggage car, and made available in cases of accident at a distance from stations.

Iron Sleepers.

The Engineer of the South Eastern Railway, England, has laid iron sleepers, instead of wooden ones on a portion of that line and expects that the greater durability of the iron will render it a cheaper material than wood. The experiments constantly going on in this country and in others, in the construction of railroads, are very interesting, and we should be glad if some of our correspondents, practically acquainted with the working of the longitudinal sill, and the wood and stone sleepers, would give us the result of their investigations.

Railroad City Improvements.

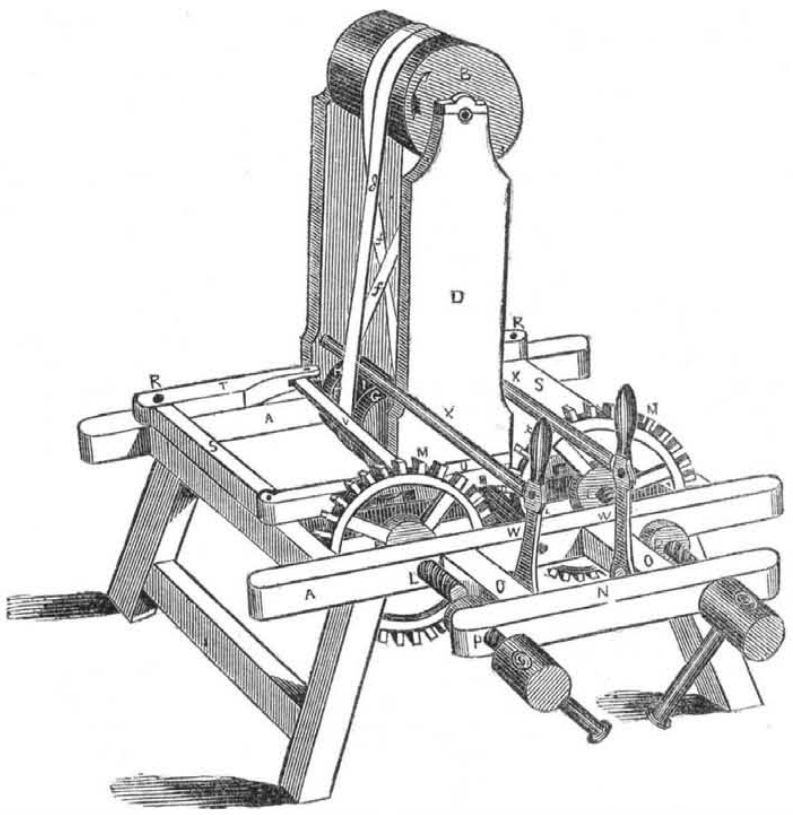
The Erie Railroad Company are making a great improvement on their dock at the foot of Duane street, this City, being no less than roofing it over the whole breadth, which is about seventy-five feet, and for nearly two hundred feet of its length, for the accommodation of the large trade which is there transacted in produce brought down by the Erie Railraad.—The amount of Business done in that way is exceedingly large.

Important Railroad Law Decision.

A passenger on the Eastern Counties railway England, instituted legal proceedings against that company for damages, from their not running their trains in conformity with their regular printed official time tables. He recovered damages to the amount of 12s 4d., the Court ruling that the time tables were of the nature of a public contract, and any deviation from them rendered the company liable.

Mr. Thaddeus Hyatt, a well known inventor of this city, proposes a new form of Rail and Car Wheel for City Railwaying, on the ground that the present Rail and Flanged-wheel, were designed for high velocities and the checks which they present are unnecessary at the limited speed allowed to cars in cities. He proposes a fluted wheel and rail to match, of such size and curve, as to offer no obstruction whatever. He also proposes a double track in the centre of the street, each track to be 2½ feet wide, with one foot space between the tracks, thus occupying but 6 feet in all.—His plans will shortly be made public.

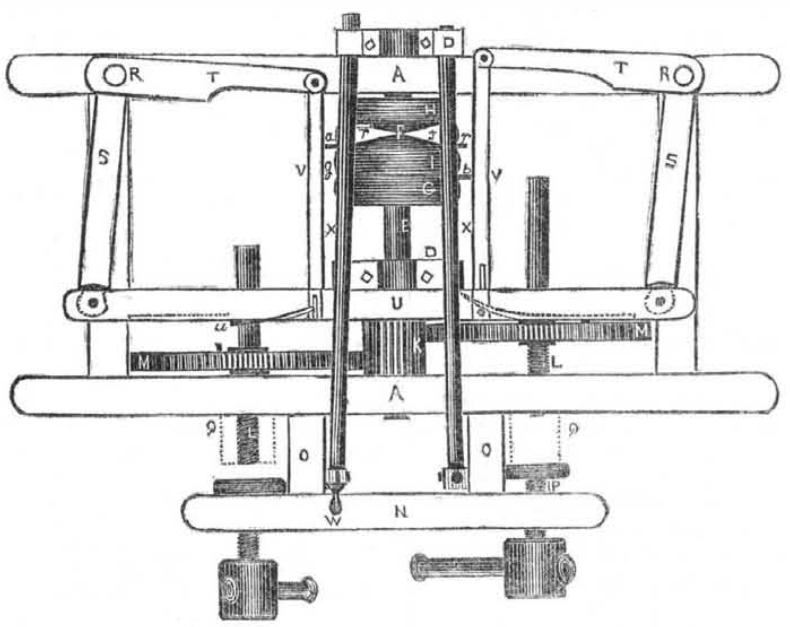
HALL'S MACHINERY FOR BORING BED POSTS.---Fig. 1.



This apparatus is the invention of Mr. Anson A. Hall, of Gibson, in the County of Susquehanna, Pa. This machine has two hollow augurs, one having a right handed thread and the other a left handed thread, fitted in two bearings, one a hollow cylinder bush, and the other a female screw, in which the screw augur itself works. Each augur has a toothed wheel on the axis, gearing into a pinion on a revolving shaft parallel to both augurs, which causes both augurs to revolve in the same direction, but while one is running forward, the other is running backward.

Figure 1 is a perspective view, and fig. 2 is a top view, with the top pulley removed. The same letters refer to like parts. A A are parallel beams, mounted upon legs, constituting the frame. B is the drum or driving pulley. D are upright supports firmly secured to the frame, E, fig. 2, is a shaft which carries two fast pulleys, G F, and two loose pulleys, H I; K is a pinion on it also. L L are hollow screw augurs, the backs of which are cylindrical shafts, carrying the toothed wheels, M M. The screws parts of the augurs work in female screws through the bearing, A, and the back part of the screws, at the back, work in bushes. The cog wheels, M, gear into the pinion, K. N is a bench-bar, secured in front by the cross ties, O O. P P are clamp screws working into female screws in the bar, N, and are employed to secure the bed posts against the front bar, A, while being cut. Q Q (fig. 2), represent the posts.

Figure 2.



R R are centre pins upon which the shifting gear works; S T are levers working on pins, R; V is a bar extending the whole length of the machine jointed at its ends by pins to the levers, S S, and it is made to slide in the direction of its length; u u are two spring catches (one not well represented) set in recesses in the bar U. V is a bar attached by a pin to the lever, T, with its opposite end sliding under one of the recesses in the bar, U. The bar, V, carries a finger, a, for leading the belt, f, off the fast pulley, F, to the loose pulley, H; b is a finger on the opposite bar, V, leading the belts g, from the fast pulley, G, to the loose pulley, I. W W are levers working on pinions and jointed to the rods, X X, which have their ends sliding in guide holes, in one of the uprights, D. The left hand rod, X, carries a finger at r, for leading the belt, g, from the loose pulley, I, to the fast pulley, G. The crossed belt, f, is represented on the fast pulley, F, and the belt, g, on the loose pulley, I, consequently the shaft, E, rotates in an opposite direction to that of the pulley, B, as shown by the arrow, fig. 1. The augur is represented entering the post Q, at the right hand, and the left hand one as being withdrawn—its *vice* screw being slackened. It is therefore a self-acting machine, shifting its own belts on the pulleys, to move the one augur forward, and withdraw the other, alternately. This machines only requires one person to attend it, and it will cut three hundred sets of screws in twelve hours.

The inventor has taken measures to secure a patent. Any information on business will, by letters, *p. p.*, be obtained from him, if addressed to his residence, mentioned above.

Useful Receipts.

To Select Turkeys and Chickens.

Take with a small head, bright eyes, tapering neck, full breast, straight back, plump oval-shaped body, with legs of moderate length. The signs of a good chicken are a plump breast, a thick, fat and flexible rump, and fatness under the wings. Old fowls should be boiled; the young may be either boiled or roasted, though the hen is preferred for boiling, and the cock for roasting. White flesh is preferable, though some think that a yellow-skinned chicken makes the most delicate roast.

Of the different varieties of the turkey, those of white plumage are considered the most delicate and tender. The signs of a good turkey are fullness of the muscles on the breast, thickness of the rump, the existence of fat under the wings, and flexibility of the hinder part of the breast bone.

Peeling and Boiling Potatoes.

The loss of the most nutrious portion of the potato is incurred by peeling off the rind and parts directly underneath, as in those the nitrogenized matter, but no starch, chiefly reside, which are dissolved by cold water and coagulated by water while boiling. If potatoes, therefore are thrown into cold water, and heated, much of their nitrogenized principle will be extracted before the water reaches the point of ebullition; whereas if it be made to boil before they are introduced, the coagulation will cause the matters to be retained within the tissue of the vegetables lying contiguous to the rind.

The best way to cook potatoes, is to steam them, an old iron pot with a close lid and a little water, will do the busiues.

Use of Corn Cobs for Cattle Feed.

It is stated that if corn cobs be soaked in salt water, that cattle will eat of them readily and thrive on them as part of their food. Half a peck to an ox every morning, is about the quantity.

To Destroy Rats.

Professed rat catchers in England use the following compound, and so affected are rats by this perfume that they can be taken by the hand with impunity.

Powdered Assafœtida	1-4 Grain,
Oil of Anniseed	1 Drachm,
Essential Oil of Lavender	1 Scruple,
Essential Oil of Rhodium	3 Drachms,

Mix this compound and spread it on the bate in the trap.

Corned Beef and Cabbage.

The Edinburgh Review says the cabbage contains more muscle sustaining nutriment than any other vegetable whatever. Boiled cabbage and corned beef make fifty-two as good dinners in twelve months as a man can eat.

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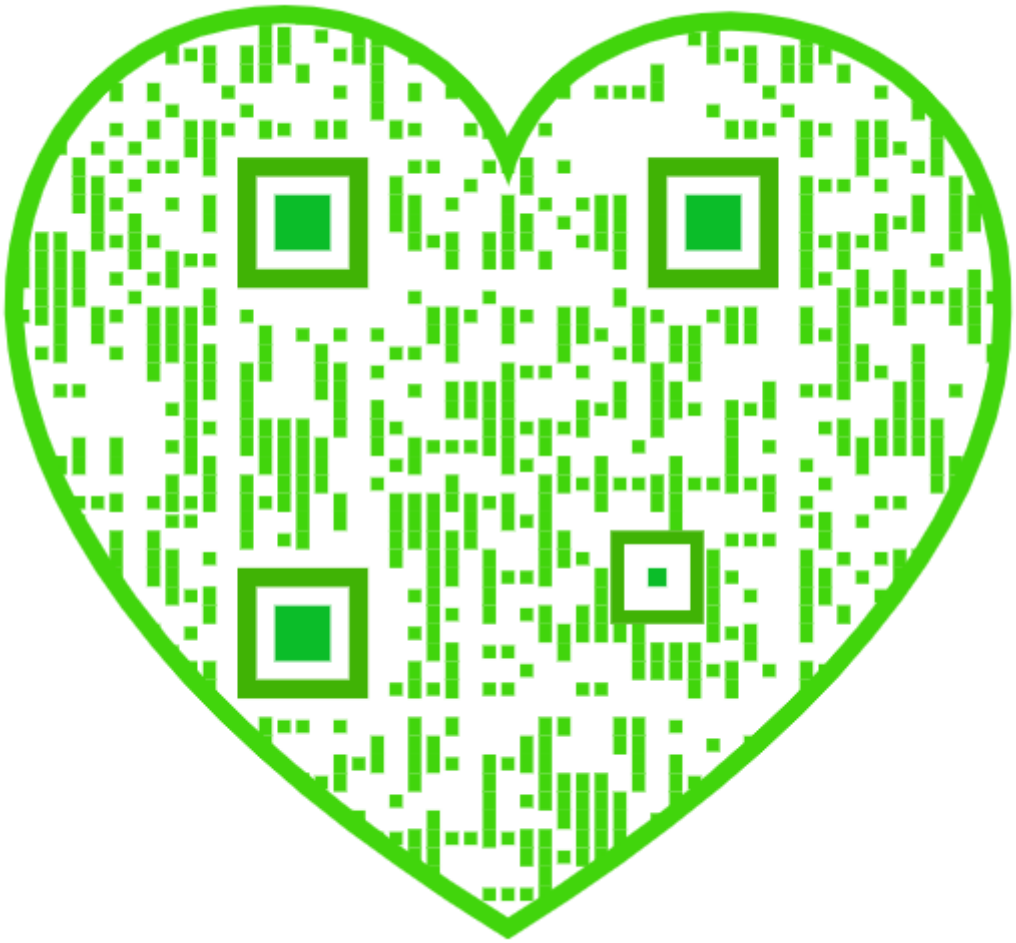

Miscellaneous.

Correspondence of the Scientific American.

WASHINGTON CITY, Dec. 11, 1849.

I wish some of your ingenious correspondents would invent an apparatus for compelling people to do their duty. Here we are at the close of the week without any thing of a business like character having been transacted by Congress, the whole time having been wasted in fruitless attempts to elect a presiding officer of a particular party. The wages of these members of the House, for the time thus wasted, amounts to over $13,000—a sum which would defray the cost of a million copies of the "Scientific American," to be distributed throughout the land. If the people would send to Congress none but good honest farmers and mechanics, what a saving it would be to the country, But as it is nearly every man thinks he must be a great talker, whereas at least nine out of ten ought to be good listeners.

The report of the Secretary of the Treasury is a document of great interest. Among other matters it contains a vast amount of statistical and other information in support of extending increased and adequate protection for coal and iron. He argues that there is an absolute necessity for specific over ad valorem duties in affording that protection. He also contends that the duties upon both iron and coal must be materially enhanced to prevent these immense interests being entirely destroyed in competition with the foreign article under the present scale of duties.

Several of our scientific men here are disputing as to whether railway axles become by use crystalized by galvanic action, and are then easy of fracture. This, you will perceive has also been the subject of discussion in the British Association, where Mr. Stephenson denied the fact. He contended that with respect to the influence of vibration on the structure of iron, there was good room to doubt that the pressure upon the metal, caused crystallization. He also doubted whether, if a piece of the iron was at first perfectly fibrous, vibration would even change the structure of the metal. This correctness of view of the case is denied by others, who are now making experiments to satisfy themselves.

You will perceive that in a synopsis of the Patent Office Report which the "Union" publishes, the subject of the high fee demanded foreigners, is alluded to. At present the subject of a foreign government, who applies to the American Office for a Patent is required to pay the sum of $500 if of Great Britain, and $300 if a subject or citizen of any other foreign power, while an American citizen is only requir- to pay $30. As this policy is evidently injurious to the interests of the country, it is said that at an early period of the Session, a bill will be introduced by the Committee on Patents to amend the law. As it now stands however, I am told that the letter of the law is frequently evaded. For instance, a foreigner desiring a patent in this country makes over all his rights in the same to an American citizen, who secures the Patent in his own name, and afterwards re-transfers the same to the first party. If this be so, it is an ingenious mode of saving $500 and one which must have originated with some Yankee Agent.

It is justly remarked, that the facility of evading punishment of a wilful infringement of the property of patentees, is now so great that a whole term during which a patent runs is not sufficient, if it be a very valuable invention, to vindicate and establish the just claims of the inventor. This evil I learn will be also promptly remedied by proper amendments to the existing law. It is to be hoped that the Speaker, whoever he may be, will take care to place practical men on the Patent Committee, for when mere *theorists* are appointed very little good, and often a great deal of mischief is the result.

Have you seen the Artificial Leg invented by Mr. Yerger of Philadelphia? There are some specimen "legs" here which are much admired by our own Naval officers. It is made entirely of steel and in such a manner that the motion of the knee and the joints of the ankle and foot are produced. Our brave soldiers may now go into the battle with little concern, seeing that the loss of their limbs can be so ingeniously supplied. If the inventor could manufacture heads as good as his legs, it would prove of great service to the country provided some of our Members of Congress could be prevailed upon to exchange the *block*-heads at present upon their shoulders. *

Manufacture of the Zinc Paint.

The manufacture of white oxide of zinc as a paint, to supersede the white lead (that dangerous and unhealthy substance) is about to be carried on by the Sussex Zinc Company on the banks of the Passaic River, N. J., on an extensive scale. The ore is abundant in Jersey, mixed along with Franklinite, in the form of a red oxide. For a long time its manufacture was deemed too expensive, for want of proper knowledge to resolve the useless ore into the useful metal, or salt. But those difficulties, we believe, have all been overcome, but not till after a great deal to our knowledge, was expended in trying experiments and gathering information from every quarter. We learn by the Newark Advertiser, that a temporary establishment has been erected in that city, and that the white oxide is formed direct from the ore in the following manner:

"The ore is pulverized and mixed with a small proportion of anthracite or charcoal, as a flux; and about forty pounds is used as a charge for a cylindrical retort made of clay—three and a half feet in length and eight inches in diameter. This retort is placed in a reverberatory furnace horizontally, one end being exposed by an opening in the furnace wall; a sheet-iron receiver is attached to the mouth of the retort, having an opening at the neck to admit atmospheric air. The receiver is elongated by flexible tubes that serve as additional receivers, and also to carry off the carbonic oxide. When the proper heat is applied, the zinc is set free from the ore, and conveyed into the receiver as a vapor of zinc, where, meeting the current of atmospheric air, from which it takes up the oxygen, it falls at once as a beautiful powder of pearly whiteness.

The small furnace now works four retorts.—The metallic zinc is made in the same manner with the exception that in the latter case the air necessary to form the oxide is entirely excluded. The furnace to be erected on the river is to work one hundred and eight retorts. The white paint which the company are now making has been tried, and is said to be more durable than that made from the white lead and less liable to turn dark."

Late California News.

By the latest news from California we learn that a Constitution has been adopted, and they are knocking for admission into the Union. Civilization is going now from the West to the East, away over to China, and vice versa—quite a number of Chinese are in California acting the part of carpenters, and they are very industrious and peaceable *citizens*.

Gold is still plenty, and the prospects still good, with hard work and a good chance for sickness. One divorce has been granted. Provisions were very high, and there was no little political excitement.

Accident Prevented.

A correspondent writing to the Journal of Commerce, from Stratford, Conn., states that when he was walking along the Housatonic Railroad, on the 6th inst., he found six ties firmly secured across the track, which were undoubtedly laid down to destroy the life of the Conductor of the Express train, which was hourly expected with the President's Message. How deeply criminal is the human heart that is at enmity with its fellow man.

Albany and Mohawk Plank Road.

We learn by the Albany Knickerbocker that it is contemplated to construct a plank road from Albany to the Lower Aqueduct, North, on the Mohawk River. The distance is eleven miles, and it opens a new and important avenue of trade, as it brings Albany nearer to Saratoga Springs and the heart of Saratoga County, than any other thoroughfare leading to that fashionable resort.

Dry Dock at the Navy Yard, Brooklyn.

The removal of the coffer dam, which obstructs the entrance to the dock, has been commenced. It is composed of five walls of timbers, driven to the depth of fifty feet, the intervening spaces being filled with broken stone and gravel, &c. A machine with a drawing power equal to 200 tons, is to be used for extracting the piles. The floating and folding gates—the former being of such strength as to sustain a pressure of 1200 tons—are being constructed at the iron works in Thirty-third street and the foundry in North Moore street. The masonry of the dock is now completed, with the exception of the coping, and it is expected to be ready for the reception of vessels by the 1st of January. To effect this, fifty men are employed night and day—three fresh supplies of fifty each being furnished for the purpose.—The immense blocks of granite of which the dock is built, are procured from quarries in Maine.

The steam engine and pumps to be used in exhausting the water of the dock, are building at the West Point iron foundry. The engine will be 400 horse power, and the pumps are believed to be the largest ever constructed; they will be capable of raising 200,000 cubic feet of water an hour. The engine house is built of granite; it will be 300 feet long by 60 wide; this engine is to work other machinery of the workshops. The entire expenditure for the construction of the dock up to next January, is according to the estimate of the Journal of Commerce, $1,500,000. The engine house, &c., will cost $400,000 more.

Valuable Manuscript.

In a recent letter of President Sparks, of Harvard College, to the Mayor of Charleston, it is stated that in the library of that institution there is a great manuscript volume of 360 large folio pages, which relates to South Carolina, Georgia and Florida. It contains topographical descriptions with remarks on the climate, natural productions, indians, &c., of those States, and many handsomely executed drawings apparently from careful surveys.—President Sparks suggests that it would be well for the States named to publish the entire volume at their joint expense, as it illustrates their former condition, and otherwise possesses much intrinsic value. It was purchased of a person who brought it lately from London.—De Brahm, the author was employed by the British Government as an engineer at the South from 1763 to the beginning of the Revolution. The City Council of Charleston authorized the Mayor to communicate on the subject with the Governors of the three States.

Paine's Hydro Electric Light.

MESSRS. EDITORS:—My reply to "Gior," alias "Carburetted Hydrogen," is simply as follows:—I have not in any instance stated that I produced a white light by the simple combination of hydrogen. As regards my school boy arguments, they are such as I deem fit to use with an anonymous writer; when "Gior" fights over his own signature, it would be time enough for me to take off my gloves. Yours, H. M. PAINE.

Worcester, Dec. 7, 1849.

Premium Stove Polish.

On our advertising page will be found the advertisement of Messrs. Quarterman & Son, No. 114 John st., this city, to which we direct attention for the purpose of saying a word in favor of their *Stove Polish*. We have tried this substance—submitted it to the *crucis experimentum*, and can state that it is *very* far superior to any black lead lustre, or whatever name it goes by, that is in use for polishing stoves.

Coal in England.

The London Times, speaking of the coal-beds of England, says: "The exhaustion of our coal-beds would be the final and utter catastrophe of our greatness, and that England would immediately sink into a third-rate power. 'It is to coal that we owe every thing which is great in our position and history.—Our coal fields are the rude foundation of this fair Corinthian pile, and England is as indebted to them as Egypt to her Nile, Athens to her schools, and Rome to her policy and arms.'"

To those about to Apply for a Patent.

It is not generally understood by those that are unacquainted with the routine of the American Patent Office, that a slight error, such as the substitution of a wrong word, or an omission to describe every important feature of an invention in a specification, may blast the success of an application for a patent of the best invention. In the first place it is necessary for an inventor to provide himself with a good model—it need not be so exquisitely wrought nor highly polished; but what we mean by a *good* model is, one that perfectly represents the entire invention, and be so adjusted as to be easily taken apart to present its internal construction. After the inventor has provided himself with a model, he should apply to some concern that is *thoroughly* acquainted with making applications for patents, satisfy himself that the parties *do thoroughly* understand their business, state what particular parts, or combination of parts he claims as his invention, and make arrangements with that agent, to attend to his whole business. It is not necessary for an inventor to leave his own fireside to get a patent secured, some of the most important inventions that have been patented during the past three years having been secured through the "Scientific American" Office (and no doubt many others) without the applicant leaving his own home. Examination of inventions and advice rendered to inventors without charge, by addressing this office.

A long experience in patent office matters, together with constant dealings among inventors and inventions, and having a list of all the patents that have been granted since the establishment of the American Patent Office—enables us to say, that any business of that nature entrusted to our care will be *properly attended to*. Our examiners are gentlemen of the highest standing in the mechanical world, and without bestowing too much merit on their ability, we will simply add that they make the Scientific American Office what is characterized by all that has done business through it, pronounce it the *Best Patent Agency* in the country. Letters from the country should be addressed (post paid) to the publishers of this paper.

A Word of Advice to Subscribers.

We would respectfully remind those who are now receiving their papers in single wrappers that if they will exert themselves a little and obtain two, three or more, (the more the better) names with their own, it will render their papers less liable to loss and damage, through the mails. We are obliged to fold the papers for single wrappers in the smallest possible compass, and the post office are more liable to overlook them in their hurry than they would if the wrapper contained three or more papers. Those who are already subscribers to the Scientific American are informed that if they will send us two more names they will not only insure the safety of their own papers better, but receive the premium offered on the last page advertised under the head of "Present."

The Price of Gas.

The Gas Companies of this city charge an exhorbitant price for their gas, and they are now trying to make engagements with the Common Council to extend the monopoly for a number of years after their present term expires. If such a bargain were consummated, it might be an unfortunate one for both parties—for assuredly a bad monopoly always meets with misfortune. Gas at a fair price would justly remove the title of monopoly as used in an odious sense.

Mortality in Paris.

From the table of mortality for the first six months of 1849, presented to the Academy of medicine by the Minister of the Interior, it appears that in that period the deaths in Paris amounted to 33,374, of which 15,677, or nearly one-half were from cholera; out of these 15,677 deaths, nearly 9019, or nearly two-thirds took place in private houses.

A factory is erecting at Lansingburg, N. Y., to manufacture linen thread. The machinery has been imported from Leeds, England, and experienced operatives have been employed who were acquainted with the business there.

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Lecture on Washing and Labor-Saving Soap.

Quackery assumes every shape and appears in every garb. Patent pills and patent medicines of every description are saintly looking monitors, but they remind us of what Pollock says about the hypocritical preacher, who "robbed heaven of its livery to serve the devil in." It is a great pity that the word *patent* should be so much abused—but it shows the value of a name, and the craft of those who know its importance. But quack medicines are not allowed to occupy the whole field of gullibility. Other things have just as good a right to do so as they have, and who can find fault with them for standing on their privileges. As it is charity to be indulgent, (but sometimes of a very questionable sort) our gentle women folks are made the tender subjects of listening to the plausible stories of all the quacks, and taking all they say for gospel. Oh, what a fall of quackery there would be if chemistry ruled the kitchen, parlor, and hall. What nostrums in boxes and bottles would be tumbled into the gutters, if at one glance, a true knowledge of their contents was to be revealed to those who think they effect a saving in family expenditures, by a little reduction in the yearly consumption of such trash. But a truce to medicines—the bugle sounds to the charge of labor-saving-soap. The conflict may not be very glorious to men folks, but it is just as honorable for women to charge with broomsticks as men with bayonets, when an enemy invades their soil, and so with *labor-saving* soap in its line. Within the past year we have seen more notices of new discoveries having been made to bless good housewives, by washing their clothes for them in a twinkling, without either pounder or scrub-board, than we ever remember to have seen in the same space of time before. One ingenious soul down East here finds out a substance to wash clothes without pounding; another out West finds out a substance to wash the clothes without the scrubbing, and another out North, not to be behind, discovers some plan and some substance, to wash, dry, bleach, and iron the clothes at one operation, just by tumbling them into a box and turning a crank. What philanthropists, noble, magnanimous, ingenious men.

The principle of washing clothes, is to remove all dirt and impurities from them, such as greasy matters, &c. The most sensible way to do this and the scientific way, is to find out a plan to separate these impurities from the clothes, in the easiest manner. For this purpose some substance is required for which the dirt, &c., has a greater affinity than for the clothes, and which, when they come in contact, will leave the clothes and unite with the said substance or substances. A third substance is required to act as a detergent, (cleanser) which, when mixed along with the clothes, the chemical compound formed by the dirt and the substance spoken of, will unite; and which, when poured out of the vessel in which the clothes are placed, will carry the impurities all away, and leave the clothes clean. Well, the best substance ever discovered to remove the dirt from clothes, by uniting with it, is good soap, which is soluble in water, and therefore it removes the dirt, which, by mixing with water, is carried away with it in the rinsing, leaving the clothes clean. Soap is made of *grease* and an alkali. Grease or oil will not mix of themselves with water, but when combined with an alkali, the *grease* becomes soluble in water. (I use the common terms to render the matter plain to all.) This should teach us that it is the alkali—such as soda or potash—that *dissolves* the animal substance, and makes it soluble in water. It is reasonable, then, to suppose that if clothes are steeped for about an hour or two before washing, in clean milk-warm water, in which has been dissolved some salts of soda, that it will soften the *grease* matters in the clothes, and render them more susceptible of having all the other impurities removed by the soap and finally, by rinsing in clean water. It would be a saving in the tear and wear of scrubbing clothes, if the expense of an extra pound of good soap, was not grudged in washing.—Camphene and turpentine have been recommended as a mixture, with dissolved soap, but it is not so good as soda. We recommend the soda, because it is clear in color, and potash is not. In camphene, there is always a little resin in solution, and brown soap contains resin also. Soap and soda, and washing will only remove those substances from clothes, which are mechanically combined with clothes.

The labor in washing clothes can be performed, with much ease, by some labor-saving machine,—but there are some machines with this name that are arrant hypocrites, being both less effective and requiring more severe labor than pounding and scrubbing. Plenty of clear rinsing water is the life of clothes. All the soap must be completely washed away, or else there will be zebra streaks in the goodman's linens, and then for sour looks, especially on *Sabbath morning*.

TO REMOVE IRON SPOTS.

The best thing to take out iron spots is oxalic acid. This acid looks like salt and is a poison. It should therefore be placed out of the reach of children. To use it, put some of the salts on the iron spot and pour hot water out of a jug on it, till the salts are dissolved, and the spot will disappear. The spot should then be well washed in water.

The water for washing should never be used too warm. This is what hurts the hands and spoils their looks, and the steam makes the labor more arduous. Washing is not such disagreeable work to some as to others, and will in no case be disagreeable, if common sense and the above suggestions be attended to.

Having had some experience in the line, and deeming chemistry a useful part of woman's education, I have studied the subject with some attention, because it is one of great interest to every family. I may at some other time seek the indulgence of your columns from which I have gained more information relating to such subjects, than by the perusal of many books. In the meantime I will subscribe myself

MRS. SOMEBODY.

Boston, Dec., 1849.

N. B.—If ammonia was not so dear, I am confident that if all white linen was handled in a weak solution of it for about five minutes before final rinsing, that a most astonishing benefit would be experienced—not a spot would it leave behind on the clothes.

Great Increase of London.

We have often thought that no city in the world, could show such a rapid increase as that of New York; but a recent Parliamentary paper proves conclusively that we were very much mistaken. In ten years, from 1839 to 1849, the increase of the inhabitants of London has been 325,904; and 64,058 houses have been erected, 1,642 new streets opened, of 200 miles in length. It now numbers 2,336,960 inhabitans. What a Babel! There are some districts in London occupied wholly by Jews, and other districts by other foreigners. There are vast masses of population aliens to each other in speech, occupation and social culture. It is believed in England that London is just as young and vigorous as ever, and that the population is likely to augment for many years; but it is believed that its increase must be spread over other areas beside the present city proper, and that cities like that of Brooklyn and Williamsburgh, somewhat distant from it, but as auxiliaries to drain off the press from the centre, will spring up. To the credit of London, be it said, that the habitations are more spacious, and that far fewer people are packed in the same space than there used to be two centuries ago—narrow lanes have given place to wide streets and spacious courts. In 1700, within the walls of London, there were 139,000 inhabitants, and in 1841 only 54,626 in the same space. But London and all other great cities has a large debased population. The late execution of the Mannings showed this:—Dickens declared that such another sight could not be witnessed in any heathen land; in that respect we believe that he is mistaken, more especially as he wrote from the impulse of the moment, and forgot that in some of her Majesty's dominions, women are sometimes yet devoted to the funeral pyre, amid the clashing of cymbals and the chaunts of heathen priests.

Oils.

The term oil is applied to two dissimilar and distinct organic products, which are usually called fixed oils and volatile oils. The fixed or fat oils are either of vegetable or animal origin; they are compounds of carbon, hydrogen and oxygen; the relative proportions vary but little in the several species. The following analyses of olive and spermaceti oil may be assumed as types of the rest:

	Olive Oil.	Spermaceti Oil.
Carbon - -	772	780
Hydrogen - -	133	118
Oxygen - -	95	102
	1000	1000

The fixed oils abound in the fruit and seed of certain plants: they are lighter than water, unctuous and insipid, or nearly so; some of these require a low temperature for their congelation, such as linseed oil; others, such as olive oil, concrete at a temperature higher than the freezing point of water; some are solid at common temperatures, such as cocoanut oil. Some of these oils when exposed to air absorb oxygen, and gradually harden, forming a kind of varnish; these are called drying oils, and are the basis of paints, such as linseed oil; others become rancid, as almond oil. All these oils, like the different kinds of fat, consist of two proximate principles, called stearine and elaine: the former is the fatty portion, which first concretes on cooling the oil, and from which the elaine, or oily portion, may be separated by pressure. These oils cannot be volatilized without decomposition. At a red heat they are resolved into volatile and gaseous products, among which carburetted hydrogen, in several of its forms, predominates; hence the use of these oils, when volatilized and burned by the aid of a wick, as sources of artificial light. The action of the alkali on the fat oils is highly important, as forming soap.

The volatile oils are generally obtained by distilling the vegetables, which afford them, with water; they fluctuate in density a little on either side of water; they are sparingly soluble in water, forming the perfumed or medicated waters, such as rose and peppermint water; they are mostly soluble in alcohol, forming essences. A few of them, such as oil of turpentine, of lemon peel, of copivi balsam, &c., are hydro-carbons, that is, consist of carbon and hydrogen only; the greater number, however, contain oxygen as one of their ultimate elements. They are chiefly used in medicine and in perfumery, and a few of them are extensively employed in the arts as vehicles for colors, and in the manufacture of varnishes; this is especially the case with oil of turpentine.

Asafœtida.

Asafœtida is obtained from a large umbelliferous plant growing in Persia. The root resembles a large parsnep externally, of a black color: on cutting it transversely, the asafœtida exudes in form of a white thick juice, like cream; which, from exposure to the air, becomes yellower and yellower, and at last of a dark brown color. It is very apt to run into putrefaction; and hence those who collect it carefully defend it from the sun. The fresh juice has an excessively strong smell, which grows weaker and weaker upon keeping; a single dram of the fresh fluid juice smells more than a hundred pounds of the dry asfœtida brought to us. The Persians are commonly obliged to hire ships on purpose for its carriage, as scarcely any one will receive it along with other commodities, its stench infecting every thing that comes near it.

The common asafœtida of the shops is of a yellowish or brownish color, unctuous and tough, of an acrid or biting taste, and a strong disagreeable smell, resembling that of garlic. From four ounces Neumann obtained by rectified spirit, two ounces six drams and a half of resinous extract; and afterward, by water, three drams and half a scruple of gummy extract, about six drams and a scruple of earthy matter remaining undissolved. On applying water at first, he gained, from four ounces, one ounce three scruples and a half of gummy extract.

Asafœtida is administered in nervous and hysteric affections, as a deobstruent, and sometimes as an anthelmintic. A tincture of it is kept in the shops, and it enters into the composition of the compound galbanum pill of the London college, the gum pill of former dispensatories.

The Chinese Chrysanthemum.

The method of cultivating the Chrysanthemum in China is as follows; cuttings are struck every year from the young shoots, in the same manner as they do in England. When they are rooted, they are potted off at once into the pots into which they are to grow and bloom; that is, they are grown upon what would be called by our gardeners', the one-shift system."

This soil used in potting is of a very rich description. About Canton it is generally obtained, in the first instanee, from the bottom of lakes or ponds, where the Nelumbeum or Water Lily grows. It is then laid up to dry and pulverise for some months, when it is mixed with old night-soil taken from the manure tanks found in every garden. A heap of this kind, after being laid up for some time and frequently turned over, is in a fit state for potting the Chrysanthemum. Manure water, taken also from the tank already noticed, is liberally supplied during the growing season, and the effects are visible in the luxurant dark green leaves which cover the plants.

In forming the plants into nice compact bushes, the plants are trained each with a single stem; this is forced to send out numerous laterials near its base, and these are tied down in a neat and regular manner with strings of of silk thread.

Artificial Flowers.

The art of representing by flowers, leaves, plants, &c., vegetable nature in her ornamental productions, constitutes the business of the artificial florist. The Italians appear to have been the first people in Europe who excelled in the art of making artificial flowers; but of late years the French have been most ingenious in this branch of industry. Ribands folded in different colors were originally employed for imitating flowers, by being attached to wire stems. This imitation soon gave way to that by feathers, which are more delicate in texture, and more capable of assuming a variety of flower-like figures. But a great difficulty was encountered in dyeing them with due vivacity. The savages of South America manufacture perfect feather flowers, derived from the brilliant plumage of their birds, which closely resemble the products of vegetation. The blossoms and leaves are admirable, while the colors never fade. The Italians employ frequently the cocoons of the silkworm for this purpose; these take a brilliant dye, preserve their color, and possess a transparent velvety appearance, suitable for petals. Of late years, the French have adopted the finest cambric for making petals, and the taffeta of Florence for the leaves.

Phenomena of the Brain.

One of the most inconceivable things in the nature of the brain is, that the organ of sensation should itself be insensible. To cut the brain gives no pain, yet in the brain alone resides the power of feeling pain in any other part of the body. If the nerve which leads from it to the injured part be divided, it becomes instantly unconscious of suffering. It is only by communication with the brain that any kind of sensation is produced, yet the organ itself is insensible. But there is a circumstance more wonderful still. The brain itself may be removed, may be cut away down to the corpus calasum, without destroying life.—The animal lives and performs all its functions which are necessary to simple vitality, but no longer has a mind; it cannot think or feed; it requires that the food should be pushed into its stomach; once there, it is digested, and the animal will even thrive and grow fat. We infer, therefore, that the part of the brain, the convolutions, is simply intended for the exercise of the intellectual faculties, whether of the low degree called instinct, or exalted kind bestowed on man, the gift of reason.—[Wagan on the Quality of the Mind.

The city of Utica, N. Y., does not owe a cent of debt, and has money in the bank.

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New Inventions.

Improvement in Manufacture of Iron.

An iron master in Fragen, Germany, has lately taken out a patent for a new species of puddling furnace, which he employs for the purpose of converting the iron into steel, during the puddling operation. The product is stated to be of superior quality, and is, of course, much cheaper.

[The above we take from an exchange. We have noticed it in more than one. It must refer to the celebrated iron works of Yasselfragan, and the improvement we are inclined to believe, is the same as that described on page 322, Vol. 3, Sci. Am.

By the Newark (N. J.) Sentinel, we learn that a Mr. Renton, of that place, has also made some valuable discoveries to cheapen the price of iron, by lessening the cost of manufacture. We have seen and noticed quite a number of recent alledged improvements in the manufacture of iron in our country. The notices which we have seen of these improvements are very flattering, and yet, for all this, we are told by Conventions of Iron Masters, that we cannot compete with the foreign manufacturers.—There must be something wrong on the one side or the other, we cannot solve the difficulty, we mean in respect to the economy of the manufacture on both sides of the water.

Gutta Percha Tires for Wheels.

We see it noticed in three or four of our Philadelphia exchanges, that some tires of carriages have been made in that city of gutta percha. In our opinion no tire can equal one made of iron. We have never seen any prepared gutta percha that could endure much heat without becoming soft, and owing to this fact it is not suitable for bands to drive machinery in warm apartments. Gutta percha-horse harness was made in England, and was found to be well adapted for *drawing* in warm weather, or when the animal was warm, as the traces expanded beautifully and allowed the animal, donkey, or *rosinante* ~~to slip it out~~ a number of rods before the cart or wagon.

But gutta percha is a very valuable substance, and possesses qualities unknown to any other vegetable product. At 60° of heat it becomes soft and capable of moulding into any form, and at 40° it becomes hard as horn. Plumbago and the sulphuret of antimony are the best substances with which we are acquainted to render gutta percha a non-conductor of heat, and capable of standing changes in the weather.

Plan for Lowering Steamboat Tunnels.

A model of an arrangement for lowering or raising steamboat chimneys, says the Philadelphia Ledger, has been made by Mr. Mason, of that city, for captain R. F. Loper, and will be sent to Washington for the purpose of being used on the trial of the Wheeling Bridge Case, before the Supreme Court. The upper part of the chimney slides into the lower part, and is calculated to reduce the height of the chimneys, when passing the bridge, from 90 to 50 feet. The upper part is raised or lowered by means of chains attached to the lower end of the movable portion by means of a winch on either side.

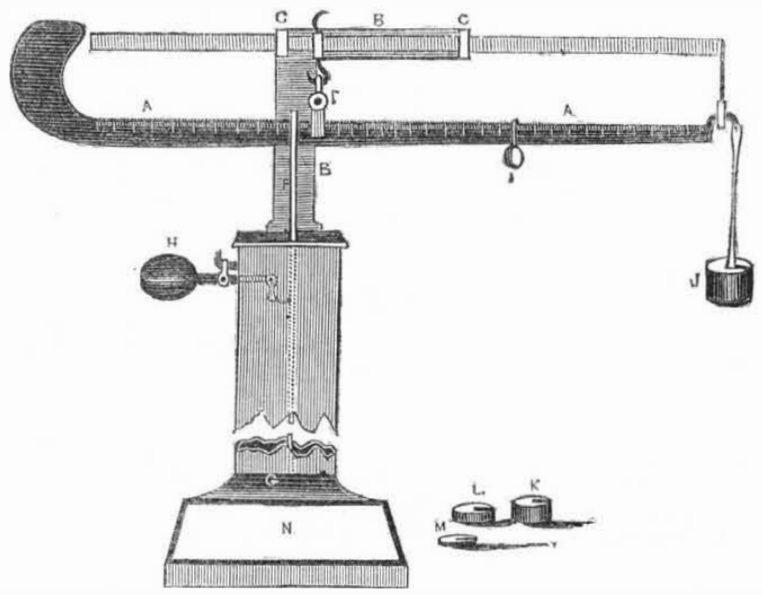
New Railroad Chair.

Mr. L. A. Gouch, of this city has invented a new railroad chair, which has been highly approved of by eminent civil engineers. It is adapted to secure the rail by one spike, to fasten only one jaw, and simply by the removing of one spike the rail can be lifted at any time. There is also a provision on it to prevent the moving of the rail longitudinally, as well as securing it down and from lateral motion. This is a very important object. He has taken measures to secure it by patent both at home and in Europe.

The American Gutta Percha Co., proposes to connect the President's House, at Washington, and the Capitol, and the several Departments, with gutta-percha speaking-tubes, laid under ground, and to guarantee that ordinary conversation can be carried on between these remote points with as much fidelity as if the different parties were in the same room

FLINT'S COMPUTING SCALES.

This invention is a scale resembling Fairbank's in appearance. It is arranged to give the amount of any weight in dollars and cents, the given price being understood. The correct weight is also given. It is a calculating, weighing scale, and is a check upon the calculators of weight. It is well adapted to the use of country stores, where part of the business is barter. The scale of figures represents prices, and the weight can be so fixed that the exact given amount in barter will be designated in dollars and cents, by shifting the position of the fulcrum to suit the price agreed upon. A A is the weighing beam. B is an iron standard, with a shoulder, B, fastened on



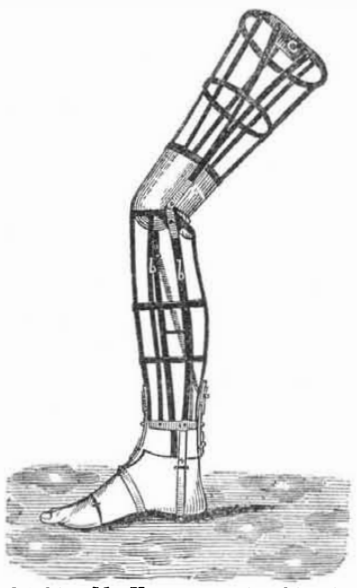
the top of the upright case. C C are metal loops, through which the top parallel bar slides, and which is attached by a stirrup loop to the beam, A, to prevent too great a vibration of the bearer. D is a loop which forms the shifting fulcrum of the beam, A. It is connected to the ~~parallel bar above~~, and they are both shifted endwise when required for weighing. F is the stirrup that is connected with the scale, N, and the beam, A. It is double or of a loop form at the top, with the beam passing through it, and any weight placed upon the scale, N, will act by this rod upon the beam, A, to raise the weight. I is the indicating weight, which is like those in common use. M L K, are extra weights, to be put on the rod from which the weight, J, is suspended for the use of centenial quantities. H is a ballancing lever of the stirrup, which is attached to the scale platform, N.

If it is desired to know the price of a bale of merchandise, or a barrel of pork, at 10 cents per pound, (the beam, A, being divided into 100ths and decimals,) the fulcrum of the beam is shifted until the stirrup, F, is over 10, when by sliding the indicating weight, I, along, as is known to all till the beam comes to an equilibrium, it will indicate 101 pounds at 10 cents, 10,10. It is by changing the fulcrum and the plan of steadying the beam that these objects are nicely attained. This beam might be applied to all scales now in use, and it is at once a ready-reckoner for the valuation of all articles to be weighed.

This scale was patented by Messrs. T. & W. Flint, of Westford, Mass., on the 20th of last March. Mr. E. C. Jones is in this city, at Earles' Hotel, as agent for the patentees, and a model is at No. 54 Wall street. Arrangements have been made for their manufacture in this city.

Yerger's Artificial Leg.

This leg is the invention of Mr. Geo. W. Yerger, of Philadelphia, the inventor of the "Ankle Supporter," which was illustrated and described on page 308, Vol. 4, Scientific American. The proprietors of this leg and the ankle apparatus, are Messrs. Yerger & Ord, Philadelphia. Mr. Yerger was in this city last week and exhibited his invention to Dr. Mott and the most eminent surgeons in our city. Only one opinion has been expressed about it by them, and that is, "it has no equal." It is called the Metalic Skeleton Leg, and it embraces a very simple and beautiful compensation for the natural muscle that operates the leg, from the knee downwards—viz., a coiled spring, which always brings forward the foot to its proper position. The old kind of legs, as a general thing, are heavy, weighing from six to eighteen pounds, rendering it very laborious for a man to carry one. They also had not a very natural motion at the knee and ankle joints, and they were not well adapted to the various forms of amputation. This leg obviates all these evils. It is constructed of fine steel ribs, put together so that one piece sustains the other, enabling it to support three times the weight of the bearer. The knee is a true ball joint, A, working into its circular skeleton socket, upon two fine centre steel pins, one at each side, as now shown in the cut; b b are the fine steel ribs, showing the coiled spring between them, which is secured above to the circular knee ball, and below to the back part of the ankle. It is therefore obvious that this spring will always bring forward the foot to its proper position, and that a very little time will be required before its peculiar use in this respect will be fully understood by the person who is to use it. This has been proven by all those who have used them. The weight of a full leg never exceeds four pounds. C is the receptacle for the stump, and it affords a most excellent form to keep it cool—an important consideration. At the ankles, one before and one behind, are small studs that work up and down in small grooves to give the requisite play to the bend of the foot. This makes it very easy for the wearer. A gentleman with one of these legs on, who had it but for a short time, came all the way from Philadelphia to show how well he could walk, out of respect and gratitude to the inventor. It was a source of pleasure to us to see the gladness which filled his heart. Any communication (*p. p.*) addressed to Messrs. Geo. W. Yerger & J. F. Ord, Philadelphia, will meet with prompt attention.



Good rice is grown upon the uplands of Georgia, on the pine lands, yielding about fifty bushels to the acre.

Foreign Invention.

Abstract of some English Patents recently issued at the London Patent Office, November, 1849:

COTTON MACHINERY.

George Henry Dodge, of the United States —now of Manchester, England, for improvements in machinery for spinning and doubling cotton yarns, and apparatus for winding, reeling, balling and spooling it. This invention of Mr. Dodge was exhibited by his father at the late Fair of the Institute, held in this city, and was noticed by us at the time. It is a most important invention to our cotton manufacturers.

Robert Sutcliffe, of Idle, in Yorkshire, obtained a patent for employing a fixed stud to carry the bobbin instead of a revolving spindle, as is ordinarily the case in throstle-frames.

Samuel Waller, of Bradford, in Yorkshire, for improvements in Power Looms. This is for weaving figured fabrics, and it consists in using a series of small shuttles attached to the *slay* of the loom, and these carry the threads for weaving the figures upon the fabric, independent of the ordinary weft threads which form the body of the fabric.

MANUFACTURE OF SUGAR.

Messrs. Robert and John Oxland, of Plymouth, for improvements in the manufacture of Sugar. This improvement consists in employing the acetate of alumina for removing the color from the syrup while refining. The acetate may be added to the syrup either before or after it is concentrated. After it is added the temperature is raised to 220° Fahr., until the greater portion of the acid is evolved. An equal quantity of tannin in water is then added, which precipitates the alumina and the carbonate of lime, which is employed as usual in the first boiling. About four lbs. of alumina dissolved in acetic acid is sufficient for about one ton of sugar.

INDIA RUBBER SOLVENTS.

George Simpson and Thomas Forster, chemists, for improvements in solvents to treat india rubber and other gums. The substance used is the chloride of carbon in a liquid state.

TO PREVENT INCRUSTATIONS IN STEAM BOILERS.

Mr. J. Horsley, in the Isle of Wight, for substances to prevent incrustations. He employs for ordinary sea water, two drachms of the oxalate of potassa combined with two ounces of ammonia phosphate of soda to each gallon of water operated on. This precipitates the adventitious matter in the boiler, and keeps it from forming on the plates in crusts. It is evident that this is far too expensive an anti-crustant ever to come into use; but he states that this mixture will render salt water fresh and fit for common cooking uses. This itself is a chemical fact of no small value.

METAL ALLOYS.

Alexander Parks, of Harborne, Stafford Co., for improvements for making certain alloys. This invention consists in using phosphorus to assist different metals to combine and form valuable metal alloys—it possessing the quality of lowering their melting points. Metals can be coated with alloys thus formed, while the alloys are in a molten state, by dipping the metal to be coated, which must be clean, into it. The metal to be coated must have a higher melting point than the molten alloy. An alloy can be made of copper, chromium, tungsten, or manganese, by mixing the sulphate of copper with any of the metals mentioned, and heating them in a crucible with a flux of charcoal, to which is added, from time to time, a little phosphorus.

New Psychological Discovery.

Raspail, the French socialist, has pointed out, the Medical Journal says, one of the powers of camphor, which, in a psychological point of view, is most important, that of putting a stop to that fearful insomnolence which accompanies the incubation and first developement of insanty; when opium, hysocyamus, conilum, stramonium, and "all the drowsy syrups of the East" fail to produce any effect, a grain of camphor, formed into a pill, and followed by a draught of an ounce and a half of the infusion of hops, mixed with five drops of sulphuric ether, is his usual remedy for procuring sleep.

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Scientific American

NEW YORK, DECEMBER 15, 1849.

Water for Cities.

In cities and villages, the interests of their inhabitants are so blended together, that it is impossible to isolate them. A farmer may cut innumerable ditches and drains through his property, without interfering with any other person's interests; but a common sewer in a city for the purposes of necessary drainage, is a different affair; hence the necessity of the municipal laws to accomplish for the public benefit, works that are often against private interests. There are three kinds of public works, over which corporate bodies should exercise a wise control, and which should not be neglected by any city corporation whatever. We refer to well paved streets, well drained streets, and an abundant supply of good water. There are many other interests, perhaps a thousand, beside these, such as gas light, public parks, halls of justice, marine accommodations, &c., &c., but the three above specified interests never can be justly neglected. In many places the public interest and benefit of a good supply of water, is ignorantly or selfishly overlooked. New York never exhibited more wisdom than when she, at a vast expense, projected and accomplished the Croton Water Works. Long before had the Philadelphians immortalized the Water Works at Fairmount; and Boston has completed an undertaking, although not so great as that of New York, yet it is one which does her honor and shows her wisdom.

The best way to supply a city with water, when it can be done, is by gravitation, carrying a large and pure supply by ventilated canals, or pipes from a higher to a lower level. This mode is attended with great expense at first, but it is always cheapest in the end. But when a corporation cannot afford to enter upon an undertaking of this kind at once, still it is no less a duty to afford a good supply of water by some other means; and no reasonable means should be neglected for doing this. although opposed by great private or minor public interests. The city of Albany, N. Y., was visited with a most terrible conflagration last year, and it was generally allowed that there was a great want of water to assist in arresting its progress. New York used to be often in the same predicament, but she is not so now. Albany has exhibited much dilatory policy in this respect, while the City of Detroit, Michigan, has exhibited a spirit which might well make her hang her head. We see that a report has been presented to her Common Council, to supply the city with plenty of water, by employing steam engines to throw it up from the Hudson, afterwards to be filtered and then supplied to the inhabitants. This plan is recommended by men of ability, and in the present instance it is a good one—a wise one. The outlay would not be much, and this much we can say in favor of it, there are some cities in the world, containing ten times more inhabitants, that are well supplied by steam engines in the same way as is proposed to supply Albany.

The town of Pittsfield, Mass., suffered last year by a fire for the want of an abundant supply of water. This it should never suffer again, while so many beautiful streams can be conveyed from but a short distance, "Sparkling clear from the mountain's rocky side." Every city, every village, every house, should be well supplied with good water. Water is as essential to health—yea to existence, as food or the air we breathe. We have been induced to make these remarks, with a view to say a word for a good object, hoping that the hint will be appreciated by every place for which the coat is fitted. We hope to see the time, and trust that it is not distant, when elegant and cheap public baths, or free baths, will be established in this and every city in our country.

We have received a communication from J. B. Eldridge, of Philadelphia, and a number from other correspondents. We will give them due attention. They have just come to hand.

Water and Steam Explosions, and Engineers.

Many bodies posses the curious property of taking a spheroidal form under certain circumstances, and in this state they possess very different properties from what they do in any other. Water in a red hot boiler becomes spheroidal, and the evaporation, strange as it may appear, is fifteen times slower than in its ordinary state; and what seems very singular, the water is only 205°, while the boiling heat is 212°; but if the boiler is allowed to cool a little, the whole suddenly passes off into steam. When an engineer, in charge of a boiler, unacquainted with this law, found that the water was too low, and the bottom plates red hot, was then to let in a little water, this would, on contact with the red hot plates, assume a spheroidal state; but when he would let in a little more, to cool the plates to the required temperature, the whole would suddenly pass off into steam, and an explosion would be the result. It is a curious property of water, that it generates steam at 212° of heat, and will give off only a certain amount of steam, according to the amount of heat continually imparted to it in a given time. Were not this the case, but that water at 212° was suddenly to assume the steam state, it would be as unmanageable as gunpowder, for a machinery propellant. As it is, no other substance, (fluid or gas) can equal it for safety and beautiful economy, as a laboring force to drive machinery. The great difficulty that science has to contend against, in its safe application and use, to prevent heartrending and terrific accidents, is carelessness and ignorance on the part of those entrusted to guide and master it. When the steam boiler becomes the master of the engineer, instead of the engineer master of the boiler, then in a *divine* interposition alone, out of the common course of nature, is an accident prevented. It would be a good plan for every State to appoint a faculty of competent engineers, to examine all engineers and to grant them diplomas of competency, without which no one should be allowed to take charge of a steamboat, locomotive, or other engines. We do not like to advocate any measure that appears aristocratic, but this is not. Every engineer should possess certain qualifications to be entrusted with the management of what concerns public life and property. The qualifications should be known, but we advocate no rule or service to be qualified—the knowledge and ability is what the public wishes, to take charge of all that is dear to them while travelling on steamboat or railroad.

Cheap Postage.

The Postmaster General's report shows that our Post Office system is in a very healthy condition, with a great surplus revenue. Many prophesied that when the postage was reduced from 25 to 10 cents for the highest rate of letter postage, that the Post Office Department would become a burden to the Government, as it barely paid expenses at that time. Now what is the result, we have a cheaper postage, and instead of a decrease, we have an increase of revenue. We never like to advocate a reduction of price for any thing whereby a fair competence is only obtained, at best, by individuals; but in governments, corporations and chartered companies, every reduction in their prices benefits the community at large: cheap water, cheap gas light, are general benefits to inhabitants of cities, and cheap postage is a general benefit to all our citizens. We advocate the reduction of letter postage to two cents, in every case pre-paid, for a distance not exceeding 100 miles; and no single letter to be more than five cents for any distance. We also advocate a cheap Ocean Postage—not over five cents for a single letter to Europe. The revenue would be increased by the reduction (argument, the P. M. G.'s Report) and the public would be greatly benefitted.

City Railroads.

A Committee has been appointed to receive proposals, plans, &c., relative to a Railway in Broadway, to relieve the streets of the carriages and omnibuses, which have become a nuisance in some sense. It is not likely that any thing will be done about it at present, or we greatly mistake the nature of the *faculty*. Our City Fathers can do some great things, and then again some great things are always to be done on paper. What has become of the Washington Monument, after all the pageantry and show displayed last year? Is that scheme to be a disgrace to our city, by being worse than the "baseless fabric of a vision," for it appears to be a visionary fabric with a *base*. What schemes, what nonsensical displays, is our city illuminated with from time to time. We hope that a double track will be laid in Broadway in the middle of the causeway, to allow two or three separate trains of cars to be going up on one track all the time, and two or three trains coming down on the other. There is no other feasible plan but this. Instead of injuring private property, like an elevated side railway, it will add to its value, and the saving to our city in repairing pavements will soon pay all the expenses of the Railroad. A branch should intersect the Broadway road at the Park, to run up Chatham street and the Bowery, and one along East Broadway. Other branches can easily be planned and safely constructed, both for the general good of our city and the private benefit, with a few exceptions, of all our citizens. An elevated railway in our city has as little to recommend it, to our view, as the building of a bridge on dry land and on level ground.

Improved Spindle Bearing.

A is the end of the spindle: it is of a cone form; B is the bearing-box, which is a hollow cylinder, with its front edge bevelled to fit the cone of the spindle; C is a cylinder of plumbago (blacklead) abutting against the conical end of the spindle, A, and the set screw is employed to push forward a plug behind the plumbago, to adjust it to the end of the spindle Plumbago is about the best substance for anti. friction that is known, and this arrangement is worthy of some attention.

The Woodworth Patent Planing Machine Case.

In our last number we merely noticed this case, because at the time of going to press the main facts had not reached us. We now present them as derived from correct sources.

The case was an action for alledged infringement of the patent for a planing machine. In 1845 a bill of complaint was lodged in the United States Circuit Court, sitting as a Court of Equity, by the plaintiff's assignees, for the Eastern section of Maryland, of the patent granted to Wm. W. Woodworth, administrator of William Woodworth, deceased, against Isaac Brown, for an injunction against the use of a planing machine in the city of Baltimore, which they insisted was an infringement of the patent. The injunction was granted.

The respondent denied in his answer to the injunction, that Wm. Woodworth was the first and true inventor of the planing machine and improvement for which the original patent of 27th of December, 1828, was issued; and he further insisted, that even if William Woodworth was the first and true inventor of the improvement, &c., for which the original patent was granted, yet that the re-issued patent of the 8th of July, 1845, issued with an amended specification, (on the surrender by the administrator of the original patent for an alledged defective specification,) was not for the same invention, for which said original patent had been granted. And he also denied that the machine used by him was the same in principle and mode of operation as the machine covered by said patent. On the filing of the said answer, the injunction was dissolved; and the Circuit Court thereupon ordered that issues of fact framed by the court should be tried by a jury at the bar of said court, as a court of law. Three issues were directed to be tried, and upon these the case was contested at November term, 1848, but the jury was unable to agree. At the present term the issues were again submitted to a jury, after a full investigation and argument, and on Saturday evening the jury returned their verdict as follows:

On the first issue, the jury find as follows: That William Woodworth was the original and first inventor of the improvement, for which he obtained a patent on the 27th of December, 1828, excepting the part thereof disclaimed by William W. Woodworth, his administrator, as by his disclaimer filed in the patent office, on the second day of January, 1843.

On the second issue, the jury find that the patent issued to the said William Woodworth, administcator as aforesaid, on the 8th day of July, 1845, is *not* for the same invention as the patent above mentioned to William Woodworth, with the exception of the part disclaimed as aforesaid.

On the third issue, the jury find, that the machine used by the respondent is the same in its mechanical principles and mode of operation, with the improvement for which the above mentioned patent of 1828 was granted, after excepting from the said patent the part disclaimed as aforesaid

As the suit was founded on the patent of the 8th July, 1845, the practical result of the verdict is in defendant's favor.

The case was decided on the 1st inst.

For the plaintiff—Messrs. Latrobe and Nelson. For the defendant—Mr. Schley.

Scientific Memoranda.

SOLAR PHOSPHORI.

There are many substances in nature, which when heated te a certain degree, acquire the property of becoming luminous at low degrees of temperature, and when merely exposed for a time to the sun. Canton's phosphorus, which is obtained from calcined oyster-shells, possesses this property; and common oyster-shells may be rendered phosphorescent, by attending strictly to tbe following directions, which are given by the discoverer for the purpose:—Take the most flaming coals off a brisk fire, and throw in some thick oyster-shells; then replace the coals and calcine the shells for an hour. Remove them carefully, and, when cold, it will be found that, after exposing them for a few minutes to the sun, they will glow, when taken into a dark room, with most of the prismatic colors.

Fluor spar, several varieties of phosphate of lime, and marble, becomes luminous, when heated to a certain point, without undergoing combustion. The luminous property may be best exhibited, by scattering them, in coarse powder, upon an iron plate, heated to redness.

Many animal substances are naturally phosphorescent. This property in the glow-worm is well known; and it appears that salt-water fish become luminous in about twelve hours after death, the brilliancy increasing till putrefaction is evident when it decreases. This effect, however, does not take place in fresh water.

The common *argand* gas burner will be much improved if the orifice is made to consist of two concentric rings approximating very nearly together to allow a thin cylindric sheet of gass to pass between them, like the camphene lamps.

The common velocity of over-shot wheels in England, is now 6 feet per second—it used to be only 3 feet. The increase of velocity has been found to be beneficial.

The wheel known as Morgan's Paddle Wheel is the invention of Elijah Galloway, the author of a work on the steam engine.

As the time is at hand when skaters will be out and away on our glassy rivers, we caution each one to provide himself with a vulcanized india life-preserver. A stock for the neck can be made double, and made into a small life-preserver by having one of its ends made of a small tube with a screw valve, to fill the hollow india rubber neck stock with air. This hint will, we hope, be appreciated.

What is meant by perpetual motion? Some machine that will return more power than it receives.

Good Copal Varnish is made by dissolving equal parts of copal in alcohol cold, and caoutchouine.

Turpentine will dissolve india rubber, so will naphtha and caoutchouine.

The way to couple three engines to one crank shaft, so as not to have two cranks pass the centre at the same time, is to couple them at equal angles, when there would be a perfect equilibrium.

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LIST OF PATENTS CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending December 3, 1849.

To Sidney A. Bantz and William Andrew, of Frederick, Md., for improvement in Mills for Grinding.

What we claim as our invention is the vibratory motion given to the concave, substantially in the manner herein set forth.

To Wesley Chase, (Assignee of William T. Barnes, of Buffalo, N.Y.,) for method of counterbalancing Window Sash.

What I claim is the arrangement herein described, of the hinged lever pinion and racks, with respect to a couple of window sashes, whereby the sashes can be connected and disconnected, adjusted and counterbalanced, as herein set forth.

But I make no claim to the mere counterbalancing of the sashes by this device.

To Ashley Crafts and Ebenezer Weeks, of Auburn, Ohio, for Double Revolving Scraper.

What we claim is the double cavity or cima-reversed scoop and scraper, whether of the precise shape herein described, or of any other substantially the same, revolving on pivots, so as to discharge and reload itself without being stopped and righted, (irrespective of the particular form of frame in which it is placed) in combination with devices substantially as described, for fastening and setting free the same.

To Wm. Eayrs, of Concord, N.H., for improvement in Stone-dressing Machines.

I wish it distinctly understood that I lay no claim to the invention of one or more chisels, and one or more hammers, as arranged, constructed, and applied to cutting or reducing stone, previous to the date of my invention or improvements, but I claim the rotating hammer as constructed and combined with each chisel stock, and made to impinge against it, and permit it to immediately afterwards move forward, preparatory to another blow essentially as specified.

To S. W. Foster, of Scio, Mich., for improvement in Grair. Separators.

What I claim is the combination of the raking apparatus with the notched surface, under which the irons on the ends of the rakes pass, by which means the rakes are caused to shake, which motion of the rakes shakes the straw and thereby separates the grain from it.

To Henry A. Landry, of Camden, N. J., (Assignee of John W. Hoffman, of Philadelphia, Pa.,) for improved Frog for Railroads.

What I claim is a railroad frog, constructed with hinged leaves, acted up on either by weights or springs, essentially in the manner and for the purposes herein described.

To C. Kidder, (Administrator of George Crosby, of Baltimore, Md.,) for improvement in File-cutting Machines.

Therefore what I claim, as Administrator of George Crosby, deceased, is, first, the peculiar combination of the spring hammer, in the manner and for the purpose above set forth.

Secondly, the application of a check for the purpose described.

To Nicholas Mason, of Roxbury, Mass., for improvement in Cooking Ranges.

I claim the arrangement of the flues on the sides, front, back and bottom of the boiler, and the upright plates, provided with valves at the top, and brick work of the range, in the manner and for the purposes set forth herein.

Secondly, I also claim the arrangement of the other flues on the sides and back of the fire chamber, and the flues under and at the back part and side of the oven and horizontal trunk, with valves and communicating with the apartments to be heated, for heating the air admitted from the cellar, or other place, by the valves, to the proper degree, to be conveyed to the apartments, as described.

Thirdly, I likewise claim the arrangement of the other plates, projecting from the plate and openings in said plate, for dividing the heat and causing one portion to be carried around the front part of the wash boiler, and the other portion around the back part of the same, as described.

To George E. Murray, of Philadelphia, Pa., for improvement in making Artificial Teeth.

What I claim is an artificial tooth, having a plate combined therewith, subtantially in the manner and for the purpose set forth.

To Jacob Pecare and Josiah M. Smith, of New York, N. Y., for improved concealed Trigger for Fire-Arms.

What we claim is the construction of a concealed trigger capable of being disclosed and made ready to operate by simple pressure imparted by the hand to its rear end, as described herein.

To Samuel W. Powell, of Tuscarora, Pa., for improvement in Mills for Grinding.

What I claim is a grinding mill, consisting of two rolls, on whose surfaces grooved and fluted helical ribs are formed, and which move with different velocities, the several parts of the machine being arranged and operated substantially as herein set forth.

To Alexander Stiven, of New York, N. Y., for improvement in Pumps for raising water.

What I claim is the annular ring with radial arm and slot in cylinder immediately between the exit and entrance, and giving motion to the annular ring or piston by an eccentric or cam, and the whole operating conjointly together as particularly set forth and illustrated in my specification and drawings herewith.

To Garret Van Riper, of Jersey City, N. J., for improvements in machinery for Spinning Hemp.

I do not claim the spinning frame, nor the spindle nor bobbin, nor the use of a flyer, or the mode of operating the same; but what I claim is the use of the circular headed flyer having a circular head at each end constructed and operating substantially as shown above.

I also claim in combination with a flanch or shoulder near the foot of the spindle, and permanently attached thereto, the use of a movable friction plate of metal, when the same is pressed to the flanch or shoulder, or upon an interposed washer, by an adjustable spring or lever pressing on both sides of the spindle, and thereby producing a drag or retardation—while by its longitudinal action it retains the spindle steadily in its step, at the same time increasing the friction and retardation, whereby I am enabled to impart any required degree of tightness to the yarn as spun, and give it a greater uniformity of texture, than can be done by any other known method, as herein set forth.

My improvements were intended for the purpose of spinning yarn from hemp and flax, but are equally useful for spinning yarn for cloth from hemp, flax or worsted—also for strong yarns from any material, and for rovings; for cotton twine from cotton yarn, and for doubling and twisting all sorts of yarn and twines.

To Prosp. Verdat du Trembley, of Paris, France for improvements in Condensers and Stuffing Boxes of Vapor Engines.

I claim the ether generator or vaporizer and condenser constructed substantially as described, whereby I obtain more perfect joints.

I also claim packing the stuffing boxes by means of leather or other analogous substance surrounding the body to be packed, when the said leather or other substance is surrounded by a chamber containing a fluid under pressure, substantially as described.

To Hiram H. Wiser, of Rochester, New York, for improvement in Cast-iron Car Wheels.

What I claim is the particular manner of forming my wheel, it being formed of an inside and outside plate—each plate being formed of sunk and raised panels alternately, the space between the raised panels extending from the hub to the tread—the part of the plates which form the sunk panels join between the hub and the tread, for the purposes substantially as herein described and represented.

To Alvah Worster, of Hannibal, N. Y., for improvement in detachable buckle-tongues.

What I claim is the detachable buckle-tongue, constructed and arranged in the manner and for the purpose herein represented.

DESIGNS.

To Daniel F. Goodhue and Charles Guild, of Cincinnati, Ohio, for Design for Stoves.

We claim the particular configuration of mouldings around the edge of the doors, and the ornaments on their panels; also the external plates of the stove ornamented, as described and illustrated, and the ornamental pattern of leg, as shown.

To Samuel Hill and Wm. B. Cline, of Philadelphia, Pa., for Design for Stoves.

We claim the combination of the ornamental figures constituting one design, as herein set forth.

RE-ISSUES.

To John S. Hall, of Columbus, Ohio, for Mill for rolling irregular shapes by means of a cam pattern. Patented Jan. 30, 1849. Re-issued Dec. 4, 1849.

I wish it to be understood that I do not claim moving the top roller up and down by a pattern, that having already been done, but I claim the employment of cams, as herein described, for elevating or depressing one of the rollers of a rolling mill, in combination with gearing the same as above set forth, so that a pattern of any length on the cam may be made to effect the surface of any given length of bar in proportional ratio, by change of the relative size of the gearing by which I avoid, in rolling long bars, any long patterns, difficult to handle and expensive to construct.

Planing Machine Patent Cases.

JACOB P. WILSON *vs.* DANIAL BARNUM.—In Circuit Court U.S., Eastern District of Pennsylvania. Issued directed from Chancery.

(Continued from page 94.)

Let us take therefrom several claims in the words of specification, and see what is claimed in each, so that you may be enabled to discover whether the machines of the defendant now before you, or either of them, come within the principle or combination, or have the peculiar structure and constituent parts of either.

1st. The first claim in the specification is in these words: "What is claimed as the invention of William Woodworth, deceased, is, the employment of rotating planes substantially such as herein described, in combination with rollers or any analogous device to prevent the boards from being drawn up by the planes when cutting upwards—or from the reduced or planed to the unplained surface as described."

As the machine patented by the defendant is alleged to be the same in substance with the combination here stated, this will form the first subject of your inquiry.

First, you will observe the patentee does not claim to be the inventor of the planing cylinder—nor of pressure rollers—nor of pressure—nor of the dip and lift cut—nor of planing from the finished to the unfinished surface—nor of planing on the length in opposition to across the head—but for a combination of these rollers or other device effecting the same purpose with rotating planes substantially such as described.

What sort of rotating planes have been described?

The patent describes them as cylinders, and the action of the planes as cutting on a curved line, making the cut like an adze, or what is called a dip and lift cut.

The difficulty to be overcome with this sort of rotating planes, was their tendency to lift the plank and cause a vibratory motion; to obviate this the pressure rollers were used. The question for your decision will therefore be:—Has the defendant's machine the rotary cylinder, or any other device substantially the same and operating in the same way, combined with pressure rollers or any known mechanical equivalent used for the purpose of peventing the boards from being drawn up? If so, he has infringed the plaintiff's patent.

Is the wheel used by the defendant substantially the same as that described in this patent? or is it an entirely different machine and the pressure guides used in connection with it used for an entirely different purpose, and to obviate a difficulty in its use entirely different from that proposed to be overcome by the pressure rollers in the plaintiff's machine? If so, it is no infringement on the plaintiff's patent.

Neither the plaintiff nor the defendant is the inventor of the Bramah or Disk wheel, or of cutters rotating cylindrically—they were both known before but not successfully applied.—The plaintiff's patent has been completely successful in overcoming the difficulties attending the use of cutters rotating on cylinders—has the defendant merely applied the principle of his invention to a substantially similiar tool or machine? Is their anything in plaintiff's specification, or the combination claimed therein, which would obviate the difficulties attending the use of the Disk?

The cones used in former cases are evidently mere colorable evasions. All the intermediate cones between the cylinder and the disk may be made by a corresponding inclination of their axes, to act substantially as cylinders, as was remarked by Brother Kane, in a late case. "The deviation from the strict form of the Woodworth machine towards that of Bramah's, or from the latter to the former, may go on increasing till the appropriate action of the original machine effectively disappears.—The cylinder by a series of progressive changes having lost itself in the disk, or the disk in the cylinder, it is impossible to define for practical purposes that angle or degree of deviation at which one of these geometric forms shall be said to pass into the other."

The same might be said with regard to the rotary cutter, or chisel, and the saw, while yet our senses demonstrate to us that the extremes are entirely different instruments, tools, or machines. If the defendant has discovered a mode of applying the disk to use in planing boards by some combination not set forth in the plaintiff's patent or suggested by it, he may be a meritorious inventor. But if he has only changed the form and proportion of his machine in order to show a mere colorable evasion to cover, while he pirates or steals the invention of the plaintiff's, he should be punished as a wrong doer; within which category this case comes, it is your province to decide.

It is not pretended that the patented machine of defendant infringes any other combination mentioned in plaintiff's specification excepting that which I have stated.

2d. Your next inquiry will be whether the machine used by the defendant for tongueing and grooving is an infringement of the plaintiff's patent, or any combination set forth in his specification.

The cutter wheels described and invented by plaintiff are evidently but modifications of his planing cylinders; the plane reduced to the chisel. The defendant uses circular saws in connection with pressure rollers.

It was said in a former case by my colleague that, "the idea of tongueing and grooving by modifications of the circular saw, is at least as old as 1793, when it was described by Gen Bentham, from whom Muir copied his machine many years after. The specifications of the two concur in describing a thick revolving saw or cutter to make the groove, and two wheel saws set at right angles with each other, on each side of the plank, making four in all, to cut the rebates of the tongue; the machine of Woodworth is an improvement on these, by substituting a single firm cutting wheel for the four circular tongueing saws, and combining this with the equally firm grooving cutter on the other edge of the plank, to reduce it to an exactly equal width throughout."

The plaintiff cannot now claim that the use of circular saws is an invasion of their patent as it is admitted that they were applied to this purpose long before their patent, and I do not understand that they make that allegation now, but that the defendant has so fashioned his grooving saw, as to be in fact the cutter wheel or revolving chisel used by them.

The second combination claimed by plaintiff as constituting the peculiarity, or principle of his invention is, "the combination of the rotating planes, with the cutter wheels for tongueing and grooving, for the purpose of planing, tongueing and grooving boards, &c. at one operation, as described."

It is not pretended that the defendant's machines infringe this claim.

His third claim is for "the combination of tongueing and grooving cutter wheels, for tongueing and grooving boards at one operation, as described."

And his fourth, "the combination of either the tongueing or the grooving cutter wheel for tongueing and (or) grooving boards, &c., with the pressure rollers, as described."

(To be Continued.)

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TO CORRESPONDENTS.

"Abbottsford"—Your communication has been received. You must excuse us for thinking your charge untrue and cowardly, for the reason that you did not sign your name to it. We are acquainted personally with Mr. Blanchard, and cannot endorse any such contemptible imputations against him. We have consigned the article to the flames, requesting you to adopt a different medium than ours to libel any person.

"I. J. W. A., of Del."—We forwarded on the 7th inst. one box, by Adams & Co.'s Express, care Cropper, Hopkins & Co., Baltimore, as per your directions.

"T. H. B., of Mass."—We have no copies of the abridged edition of Minifie's Drawing book on hand at present. The unabridged edition sells best with us and we find it no object to keep both kinds.

"Dr. J. B. R., of Ala."—Your favor of the 28th inst. has been received, the requests will all be attended to without delay.

"W. M., of Ala."—We have never seen a plan for keeping the day of the month similar to yours. You could no doubt obtain a patent for it.

"S. A. S. of N. Y."—Your plan for a telegraph across the Atlantic has been duly considered. We cannot give it our approval, in fact none of the plans proposed can ever in our opinion be safely adopted.

"J. K. B., of Ky."—We regret that we cannot give you any information in relation to "Winders Pump;" he formerly resided in Hagerstown, Md., but we think he removed from that place to Ohio. $1 received and credited for 6 months' subscription.

"C. J. O., of Pa."—Your communication has been carefully read. We cannot publish it as it contradicts the most simple facts in chemical science. By a careful perusal of the Encyclopedia of Chemistry, you will find that your position is untenable.

"W. M. H., of St. Louis."—If you wish a good work upon drawing, we recommend "Minifie's Mechanical Drawing Book. The author is a teacher of this art in Baltimore and understands the subject well. Price $3. The publisher of Chapman's Drawing book will not send any numbers until the money has been paid for them. Price 50cts. each, 3 numbers issued.

"D. B., of Detroit."—You can use the grate with the bottom taken off if you choose. The principle is the same. We do not know exactly how many back numbers you left, but send them by guess work.

"R. C. J., of Mass."—Mr. Swingle claims in his mortising machine, the combining of a driving, and two spur wheels with the augur and square chisel, the whole being portable, and moving in a sliding frame, in combination with the arrangement of the pitman, with a slab and regulating screw at its lower end, with a lever and right and left hand screw at its upper end by which to regulate the depth of the bore: A very excellent and rapid working machine.

"B. M. Van. D., of N. Y."—We do not find among our list of Patents for 18 months back an atmospheric churn dash like yours, although we are now convinced that we have seen the same somewhere. It is difficult to tell what has not been done in the way of churns.

"E. R. R., of Vt."—The drawings and specification of your improvements are in the Patent Office, and cannot be returned to you, on any account as the law will not allow it.

"R. T., of Pa."—Your package was sent to Lanesboro, on the 6th inst, as you requested. The back numbers you will find enclosed with the volume.

"C. A., of S. C."—We forwarded you 10 numbers of Ranlett's in two packages on the 6th inst. by mail.

"H. W. C., of Mass."—Your papers have been returned to the office with the request that they should meet prompt attention. You are not the only person that has complained to us in regard to the action of the American Institute, don't worry. We trust you will meet that success, which is due your energy and industry.

"S. W., of Pa."—Your letter has been received and its contents carefully examined.—Nothing can now be done for the agrieved party, unless he files an application in the Patent Office when it will be the duty of the Commissioner to give notice of interfering applications, and give each party an opportunity of establishing priority of claim. We do not care to interfere in the business as the circumstances are unknown to us. The course recommended above is the best and only way to decide the matter.

"A. P., of Ind."—The Camera can be forwarded to you by Express to some place near you, but we are unable to say how much it would cost.

"B. S., of Me."—You are at liberty to present you views for our consideration although, we should prefer to have you test them, beforeh and. We have no time to spend in testing new inventions, and never take any pecuniary interest in them. Hundreds of inventors visit this city for the purpose of experimenting with their inventions. We should think however, that any of your seap ort towns would afford sufficient facilities for that purpose. Every plan strikes us favorably, which has a shadow of improvement about it, but we ha ve not the slightest idea of yours, we cannot express are opinion pro or con.

"E. B. W., of N. H."—Will endeavor to attend to your request this week. It will save us much trouble if you could furnish the dates of the patents.

"W. B.. of Mass."—The drawing and description of your mode of propelling has been received and carefully examined. We candidly give it as our opinion that it is one of the oldest principles known in propelling, and no patent could be secured for it. Buckets arranged on endless chains, have been described in some previous number of the "Sci. Am." and their application merely in a different way, does not constitute a patentable novelty. An experiment on a large scale, would prove its inefficiency, compared with the present system.

"M. K., of R. I."—The water Telegraph is older than the electric; it could not be worked so cheaply.

"A. B. C., Nova Scotia."—A method cannot be patented—the method you speak of is a mathematical discovery, not patentable by our laws. You can use a machine, when separate from another with which it is combined—remember that no patent covers two machines see the charge of Judge Grier in the last Sci. Am., and this one.

"D. I., of St. Louis."—We know of no recent improvements in the hoisting of machinery; if we do find out any we will get it up for you in a cut or drawing.

"G. L. C., of Norfolk."—We do not know what you mean except it is camphene—it goes by various names in different places. It is made by distilling highly rectified spirits of turpentine with some alcohol.

"T. E. & C., of N. Y."—Geo. L. Mason, of Williston, Vt., received a patent for the use of steam as a substitute for oil in wool carding, Sept. 4th, 1847.

"W. D. H., of Mass."—Yours has been received, and the engraving will appear in our next, if nothing happens.

The specifications and drawings belonging to individuals and companies with the following initials, have been executed since our last issue, and the former sent to the various parties for signature:—

C. A. & Co., of N. Y.; J. S. A., of N. Y.; Mrs. L. B., of N. Y.; C. D. & T. L. V., of Pa.; A. & W. B., of Ill.; J. C. & G. F. F., of Vt.; A. A. H. of Pa., and G. B., Jr., of Tex.

After receiving your specifications, and having examined and signed them, please return them back to this office for further action.

Money received on account of Patent Office business, since Dec. 6, 1849:—

J. D. J., of Ct., $20; A. A. H., of Pa., $23; O. W. S. of Ct., $30; J. R., of N. Y., $20; H. W. B., of N. Y., $20, L. A. G., of N. Y., $50; N. R. S., of Va., $70; D. R. S., of N. H., $30, and A. P. W. of Ct., $25.

ADVERTISEMENTS.

Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

MUNN & CO.,
128 Fulton street, New York.

THE RAMBLER FOR 1850.—The BOSTON SATURDAY RAMBLER will commence its Fifth Yearly Volume on Saturday, Jan. 5th, 1850, on which occasion it will appear in an entire new and elegant suit of type, printed on fine paper, and in all respects equal to the handsomest journal of the day. Several other important improvements and new features will be introduced, and it is intended that the paper shall in every respect present higher claims to the patronage of the public than it has yet pretended to. The volume will open with a splendid original romance by C. W. Webber, Esq., author of "Old Hicks the Guide," "The Gold Mines of the Gila," "Shot in the Eye," &c. It is entitled "The Bravo Ranger," or "The Scalp-Hunter of Chihuahua, and will probably extend through eight or ten numbers of the paper. Mr. Webber is known throughout the country from his daring excursions into comparatively unknown portions of the continent, as well as from the fresh and entertaining account of his adventures which he has given to the world in "Old Hicks" and the "Gold Mines of the Gila."

Among other features of our paper, worthy of note, may be mentioned the department for Farmers, in which origiual articles appear weekly from the best agricultural writers in New England; the Financial and Business department, under the direction of an accomplished financial writer; the Markets, which we report with more than usual fullness; the Shipping List, into which we condense with grear care, all marine intelligence of interest, to New England readers; the News Department, to which careful attention is devoted; besides which is given early intelligence of all new inventions, and discoveries, sketches of travel, historical, biographical and scientific articles, Sunday readings, puzzles, enigmas and problems, humorous sketches, and everything else that can benefit or interest the ordinary reader. The Illustrations will be continued weekly, and an entirely new field of embellishments will be entered upon.

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PHRENOLOGY.—Each number will contain either the analysis and location of some phrenological faculty, illustrated by an engraving, or an article on their combinations; also the organization and character of some distinguished personage, accompaied by a likeness, together with frequent articles on Physiognomy.
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THE WATER CURE JOURNAL FOR 1850.—The Water-Cure Journal is published monthly, at One Dollar a year, in advance, containing thirty-two large octavo pages, illustrated with engravings exhibiting the Structure and Anatomy of the entire Human Body; with familiar explanations, easily to be understood by all classes.

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Sample numbers Sent Gratis. 11 2m

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11 8 Machinery Agent, 43 Fulton street,

TO THE PUBLIC.—The undersigned is prepared to execute in the best manner all kinds of patterns for foundries, models for inventors, and also drawings, if desired, agricultural implements, millwright work, &c., in the best possible manner, at low prices, upon short notice. He trusts that his experience and strict attention to business will secure him a liberal patronage. ROBERT F. BEEBEE.
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PREMIUM STOVE POLISH, &c.—Quarterman's Chemical Oil Stove Polish, American Atomic Drier, Electro Chemical graining colors, and gold size. The stove polish is put up in tin boxes of 12 1-2 to 31 1-4 cts. Sold wholesale and retail at 114 John st., New York, by
QUARTERMAN & SON,
8 3m* Painters and Chemists.

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PARKER'S WATER WHEEL.—The Subscriber offers rights for Sale, by Counties or States, of the Best Water Wheel for Grist Mills, in the United States, which will grind a bushel of corn from three to eight minutes, under a head of water from five to ten feet. It being at the same time simple and durable; any person purchasing a State right will be furnished with a model, and by addressing the Subscriber at Camden, S. C., will have all satisfactory information given.
4 3m* EMANUEL PARKER.

ENGINE LATHES.—The Subscribers are now manufacturing, and have constantly on hand, an extensive assortment of the best patterns of Engine Lathes, which they offer at the following prices:—A Lathe 8 feet long, swing 19 inches, with back and screw gearing, drill chuck, centre and follow rest, $200; ditto, without screw gearing, $150; ditto, without fixtures, $125. For particulars of other sizes, address, (post-paid) SCRANTON & PARSHLEY, New Haven, Ct.

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Scientific Museum.

Sulphur.

Sulphur exists abundantly in nature, but is principally collected in volcanic countries. A great portion of the sulphur employed in Europe is obtained from Sicily, to which country its extraction is so important, that, out of 2,000,000 inhabitants. about 20,000 are employed in it; and the amount received by Sicily for sulphur exported, amounts to $1,830,000 per annum. Sulphur exists in nature not only in the mineral, but most abundantly in the vegetable kingdom also: without it plants could not exist; for there is no plant in which albumen is not found, and to the existence of albumen, sulphur is an indispensable requisite. In the animal kingdom, too, sulphur exists in large quantities. In its preparation, sulphur undergoes two processes: being first purified in a most careless and wasteful manner in Sicily, impurities being allowed to remain ranging from 3 to 26 per cent., the general average being about 15 per cent.; it is afterwards purified. Flour sulphur is not, chemically speaking, as pure as the roll, as it is liable to contain sulphuric acid; and this fact, if not known, might lead to failure in certain operations. Sulphur is a bad conductor of heat, and also of electricity; and another curious property it possesses is, that, when heated in a crucible, it first becomes fluid, then thick like cream; and, if still further heated, it becomes fluid again. If poured into water when in the second state, it becomes elastic, and it is thus rendered available for taking impressions of seals, &c.; but if it is allowed to cool, or to boil, it will then be brittle. Sulphur forms with oxygen seven chemical compounds, but only two possess any interest—sulphurous acid and sulphuric acid. One instance of the extensive use of sulphur is in the manufacture of gunpowder, which is composed of sulphur 12½ parts; carbon, 12½; and saltpetre, 75—so that every time a 24-pounder is fired, for which a charge of 8 lbs. of powder is used, 1 lb. of sulphur is employed. The application of sulphur in the arts is very extensive; and there is one very common application of it, of which the importance is not, perhaps, properly appreciated: it is in the manufacture of matches. Sulphurous acid, one of the compounds of sulphur with oxygen, is much used in art. It is found to escape in torrents from the mouths of volcanoes; and it is generally believed that its inhalation caused the death of Pliny the elder, A. D. 99. It is found that this acid is the only material with which woollens and silks can be bleached, and its application to this purpose is very simple and extensive. Sulphurous acid is soluble in water, but this solution had no application until of late years. It is now used for restoring colors. There is a substance imported into England from the Cape of Good Hope, called jute, which had hitherto been considered of no use, from the supposed impossibility of bleaching its fibre; but this has lately been effected, and a white and silky appearance imparted to it. Sulphurous acid is the only thing by which this bleaching can be effected; for if placed in an alkaline liquor, jute is reduced into a soft pulpy state. The quantity of sulphuric acid manufactured in England at the present time is at least 50,000 tons annually. It exists abundantly in nature, but not in a pure state, and is chiefly found in the rivers of South America. Sulphuric acid is first mentioned in the ninth century: it was Basil Valentine who, in the fifteenth century, discovered the means of obtaining it by the calcination of green copperas; but it was only in the year 1746 that two Englishmen conceived the idea of extracting it from sulphur, by means of the large leaden chamber now used. 300 lbs. of acid is obtained from 100 lbs. of sulphur. The theory indicated 306 lbs. as the quantity which should be produced; so that nearly the whole amount is obtained. Sulphuric acid can also be produced in a solid state; the advantage of which will be evident to those who know the difficulty of obtaining vessels for its exportation in a fluid state, as well as the danger which often attend its removal from the manufactory to different warehouses. A singular property of sulphuric acid is its power of drawing or attracting from the atmosphere fifteen times its own weight of water; a fact which should induce those using the acid to be careful that the carboys are well corked. When by this attraction of the water the specific gravity of the acid is reduced below 1.24, it becomes unfit for many purposes, and, among others, it will not dissolve indigo. Another curious property of the sulphuric acid is, that when exposed to the air, it becomes black; but this may be remedied by boiling the acid, and thus causing it to lose the water it has absorbed. Persons employing sulphuric acid cannot be too cautious, as on coming in contact with chloride of potash, turpentine, or other substances, a fierce combustion instantly follows.

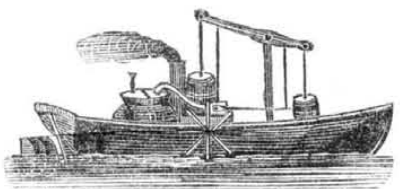
History of Propellers and Steam Navigation.

[Continued from page 96.]

EXTRA CHAPTER ON RUMSEY AND FITCH.

James Rumsey and John Fitch were contemporaneous inventors, and no person at this day would imagine the amount of strife, ill feelings and struggling for supremacy and for public favor between the two and their friends, were it not for documents left behind—(showing the value of the art of printing)—to prove the old adage with inventors as with merchants, "two of a trade cannot agree." There was evidence in our possession that Rumsey and Fitch had published pamphlets, but we had been informed that none were now to be found, and we principally referred to the articles relating to Fitch, by the son of his old companion, Daniel Longstreth, and Mr. Whittlesley. Far less is known about Rumsey than Fitch, and information relating to his inventions and himself is very scarce. We have been favored with some most important and rare information on the subject.*

FIG. 8.



At the present day, when so much is said about who the first inventor of the screw propeller was, to be told that it was an American—the unfortunate but now far-famed John Fitch, would surprise many people; but so it was. It will also surprise many to be told, that his propeller sailed in 1793, in water 60 feet deep, where the Halls of Justice now stand, in New York City, but so it was, if all stories are correct. In 1846 Mr. John Hutchins, of Wesley Place, Williamsburgh, L. I., published a chart, with the above cut, which has been somewhat widely circulated in this city. Mr. Hutchins says that in the summer of 1796 or '97, he, when a lad, assisted Mr. Fitch in steering his boat, and otherwise attending to his machinery of the above boat, on Collect Pond, which then covered the ground where the Tombs now stand, and that part of our city round that quarter. The boat was a common long boat, eighteen feet in length, six feet beam. She was steered at the bow when the propeller was used. The boiler was a 10 or 12 gallon pot with a thick plank lid firmly fastened down on it. The cylinders were of wood, barrel shaped outside, and firmly hooped. The main steam pipe was led from the boiler into a copper box. The leading pipes led into two cylinders. Each piston rod was attached to the extremity of the beam. The connecting rod is seen between the bow cylinder and the beam support, Mr. Hutchings says, was so arranged (not plain to us) as to turn the crank of the propelling shaft, which passed horizontally through the stern of the boat and was made fast to the screw. If the above is a true cut of John Fitch's engine, and its arrangement for propelling, we must conclude that the ideas for the purpose of propelling were good, but the machinery was crude, and that Mr. Fitch had not attained to the true mode of combining the mechanical parts for driving the propelling parts. But we must make due allowance for Fitch's poverty—for the want of commanding right materials, and if he propelled the boat at the rate of six miles per hour, may we not rather be charmed with that genius which took not the materials he would have chosen, but what were at his command, and propelled his rough boat, with his rougher engine, at such an astonishing speed. We are inclined to doubt the speed stated, because it is not a bad speed, with a good engine and screw, at the present day. But although we have no doubts about the boat and the screw used by Fitch, as a propeller, we will be pardoned for taking time by the forelock, to check one discrepancy in Mr. Hutching's memory. He states that both Livingston, Fulton and Col. J. Stevens visited Fitch's boat, and that Mr. Fitch explained unto Fulton the *modus operandi* of the machinery. Now all the biographies of Robert Fulton assert that in 1796–7 he was in France. He went to London in 1786 and did not return to America till 1806. In 1797 he was trying experiments with Joel Barlow on the Seine, and it would be a very singular thing to find him both on the Seine, in France, and the Collect Pond, in New York, at the same time. It would have been well had the fact of this propeller, with the date of its operation, been set forth, and no more. Hebert attributes the invention of the screw propeller to an American, but does not state the name of the inventor, and in fact no where before have we been able to trace this invention to its author. Mr. Hutchings has therefore done the cause of science a service in this respect. This boat, with a part of its machinery, was abandoned by Mr. Fitch, and left to decay on the banks of the Pond, from whence it was carried away, piece by piece, by the children, for fuel.

* We scarcely know how to express our thankfulness to the learned and able historian, Dr. E. B. O'Callaghan, for sending us the proof sheets and plates of certain papers and pamphlets, about to appear in the Second Volume of the Documentary History of New York, prepared by the order of the New York Legislature, an order which will confer lasting honor upon it. From these papers we will review the claims of Rumsey and Fitch in our next number, and to them we are indebted for this "Extra Chapter" of our history.

Welding.

This is the property which pieces of wrought iron possess, when heated to whiteness, of uniting intimately and permanently under the hammer, into one body, without any appearance of junction. When a skillful blacksmith is about to perform the welding operation, he watches minutely the effect of the heat in his forge-fire upon the two iron bars; and if he perceives them beginning to burn, he pulls them out, rolls them in sand, which forms a glassy silicate of iron upon the surface, so as to prevent further oxydizement; and then laying the one upon the other, he incorporates them by his right-hand hammer, being assisted by another workman, who strikes the metal at the same time with a heavy forge-hammer.

Some Properties of Carbon.

The properties of carbon are numerous.—When a piece of charcoal which is very clean and free from ash, is immersed in a solution of metalic salt, the metal itself is deposited on the charcoal with all its natural brilliancy. Salts of tin, copper, platina, silver and gold, furnish very beautiful deposits. When the salts are too acid these effects are not produced. The weak salts of copper often yield upon the charcoal the most varied shades of color from the rich azure blue to the deep copper color. There are some parts of charcoal for which some metals exhibit a preference to that of others.

Change of Weather.

This has been a very mild fall in Canada, and already we see some predicating a change of climate upon the warmth of the courtship for the annexation nuptials, which is pursued by some of our northern neighbors. Some attribute a great change in our climate, and also that of Canada, to the removing of the forests and a better cultivation of the land. Some Geologists hold to the doctrine that we are drifting to the North Pole, consequently we should always be growing colder. The Meteorological observations, kept in Quebec for the last 150 years, conclusively prove that no change has taken place, and the dates given by the early voyagers of the opening and closing of the navigation show no difference on that point from the present time; but on the other hand, we have the evidence of history to prove that neither Rome nor Britain have such cold winters at the present day as they had 18 centuries ago. Who can set all matters right?

LITERARY NOTICES.

PETERSON'S LADIES' NATIONAL, for January, comes to us enlarged and beautified in every respect. It contains eight original embellishments, executed in the best style of the art. We are particularly pleased with the beauty of the Illuminated title page, printed in seven different colors, on a ground work of gold—a very difficult branch of the printing art. "The Rising Tide," by Gross, "The Valley Farm," by Butler, are also well done. The contributions are spirited and entirely original, from a galaxy of good writers, such as Mrs. Stephens, Mrs. Osgood, Mrs. Neal, Mrs. Moreton, and Mr. C. J. Peterson, the enterprizing publisher. This Magazine, with the new improvements, is unquestionably one of the best in the world, and cannot fail of a large addition to its present list of monthly readers, especially when they remember that it is still furnished for $2 per annum.—Published at Philadelphia.

GODEY'S LADY'S BOOK.—The January No. of this popular and standard Magazine is on our table, and a more beautiful number of any periodical have we never beheld. A new volume commences with this number, and hence a most favorable time to subscribe. Godey's Book is the oldest Magazine published in this country, the present number commencing the fortieth volume of its publication, and as yet it stands unrivalled by any of its cotemporaries. H. Long & Bro., Agents for this city, 43 Ann street.

SARTAIN'S UNION MAGAZINE.—We are indebted to Messrs. Dewitt & Davenport for the December number of this popular Magazine. The embellishments consist of "The Brothers," by Sartain; "The Rustic Wreath," "Luther and the Christmas Tree," besides several others of merit. The value of this Magazine does not consist altogether in the amount and beauty of its engravingt; the literary contents is of the highest order of excellence, from first class authors. The present number closes the volume.

H. Long & Bro. 43 Ann st., this city, have just issued "Rockingham, or the Younger Brother," by an English author; "Jeremiah Parkes," by Mrs. Mackenzie Daniel. "The Dowager, or the New School for Scandal," by Mrs. Gore; "Jack Ariel, or Life on Board an East Indiaman." Prices 25 cts. each.

We take pleasure in calling the attention of our readers to the advertisement of the SATURDAY RAMBLER, in another column. This paper is one of the best in the country, and enjoys the confidence of a host of lovers of chaste and refined literature.

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